

ANNEXURE - A REV-00 (Technical Specification)

BHEL BHOPAL SWE	Technical Specification of:- EM RELAYS		
W.O	PI No.: 240902063		
	95013A47602 Yadadri		

ITEM NO.		001	Vendor Confirmation
a.	APPLICATION	High Speed Tripping Relay (86) With Min 8 Contacts having operating time 10 ms or less With A)Hand Reset contacts B)Coil Supervision & Coil Cut off Contact(other than above) C)High Burden	Complied/ Not Complied
b.	TYPE	VAJHM23 of GE T&D(Previously Alstom)make or Equivalent	Complied/ Not Complied
c.	AUX. SUPPLY	Aux. Supply shall be provided by BHEL Lot wise during order execution stage	Complied/ Not Complied
d.	OPERATING VOLTAGE	70% TO 120% of Rated Aux. Supply.	Complied/ Not Complied
e.	FLAG	Hand Reset Operation Indicator (Flag) for each element	Complied/ Not Complied
f.	CASE & TERMINATION	i. Case size to be enclosed	Complied/ Not Complied
		ii. Cutout drawing to be enclosed.	Complied/ Not Complied
		iii. The Relay shall be mounted in flush mounted case, with rear access terminals.	Complied/ Not Complied
		iv. Terminals shall be suitable for connecting two wires of 1.5 mm Sq.mm cross section	Complied/ Not Complied
		v. Special Lugs or sockets, if required shall be supplied in adequate quantity along with the each relay.	Complied/ Not Complied
		vi. All contacts and coil connections shall be independently wired out to relay terminals without any common point.	Complied/ Not Complied
g.	CONTACTS	Minimum contacts combination i) 5 NO + 3 NC HR	Complied/ Not Complied
h.	WIRING DIAGRAM	i. Wiring diagram to be enclosed.	Complied/ Not Complied
		ii. Drawing of terminal disposition viewed from terminal side to be enclosed.	Complied/ Not Complied
i.	APPLICABLE MODEL NO.	Complete Model No. for Offered Relay to be enclosed	Complied/ Not Complied
j.	RESISTOR IF APPLICABLE	If applicable shall be supplied with each relay	Complied/ Not Complied

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Item No		002	Vendor Confirmation
a.	APPLICATION	Bi stable(Electrically Reset)type for Breaker Contact Multiplication (52X)	Complied/ Not Complied
b.	TYPE	VAJC11 of GE T&D(Previously Alstom) or Equivalent Relay	Complied/ Not Complied
c.	AUX.SUPPLY	Aux. Supply shall be provided by BHEL Lot wise during order execution stage	Complied/ Not Complied
d.	OPERATING VOLTAGE	80% TO 110% of rated Aux. Supply. Supplier to specifically confirm that relay is suitable for continuous operation at i.e. 110% of rated aux supply.	Complied/ Not Complied
e.	FLAG	Electrically Reset flag	Complied/ Not Complied
f.	CONTACTS	Minimum 4 NO + 4 NC Electrically Reset	Complied/ Not Complied
g.	CASE & TERMINATION	i. Case size to be enclosed	Complied/ Not Complied
		ii. Cutout drawing to be enclosed.	Complied/ Not Complied
		iii. The Relay shall be flush mounted or Din Rail mounted case.	Complied/ Not Complied
		iv. Terminals shall be suitable for connecting two wires of 1.5 mm Sq.mm cross section.	Complied/ Not Complied
		v. Special Lugs or sockets, if required shall be supplied in adequate quantity along with the each relay.	Complied/ Not Complied
		vi. All contacts and coil connections shall be independently wired out to relay terminals without any common point.	Complied/ Not Complied
h.	WIRING DIAGRAM	i. Wiring diagram to be enclosed	Complied/ Not Complied
		ii. Drawing of terminal disposition viewed from terminal side to be enclosed.	
i.	APPLICABLE MODEL NO.	Complete Model No. for Offered Relay to be enclosed	Complied/ Not Complied
j.	RESISTOR IF APPLICABLE	If applicable shall be supplied with each relay	Complied/ Not Complied

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ITEM NO.		003	Vendor's Confirmati on
a.	APPLICATION	High Speed Tripping Relay (86M) With Min 7 NO S/R Contacts with operating time 10 ms or less and reset time 20 ms or less.	Complied/ Not Complied
b.	AUX. SUPPLY	Aux. Supply shall be provided by BHEL Lot wise during order execution stage	Complied/ Not Complied
c.	Type	VAJS23 of GE T&D(Previously Alstom)make or Equivalent.	Complied/ Not Complied
d.	OPERATING VOLTAGE	70% TO 120% of Rated Aux. Supply.	Complied/ Not Complied
e.	FLAG	YES (operation indicator for each element/coil)	Complied/ Not Complied
f.	CASE & TERMINATION	i. Case size to be enclosed	Complied/ Not Complied
		ii. Cutout drawing to be enclosed.	Complied/ Not Complied
		iii. The Relay shall be mounted in flush mounted case, with rear access terminals.	Complied/ Not Complied
		iv. Terminals shall be suitable for connecting two wires of 1.5 mm Sq.mm cross section.	Complied/ Not Complied
		v. Special Lugs or sockets, if required shall be supplied in adequate quantity along with the each relay.	Complied/ Not Complied
		vi. All contacts and coil connections shall be independently wired out to relay terminals without any common point.	Complied/ Not Complied
g.	CONTACTS	Minimum contacts combination 7 N/O , S/R	Complied/ Not Complied
h.	WIRING DIAGRAM NO.	i. Wiring diagram to be enclosed.	Complied/ Not Complied
		ii. Drawing of terminal disposition viewed from terminal side to be enclosed.	Complied
i.	APPLICABLE MODEL NO.	Complete Model No. for Offered Relay to be enclosed	Complied/ Not Complied
j.	RESISTOR IF APPLICABLE	If applicable shall be supplied with each relay	Complied/ Not Complied

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ITEM NO.		004	Vendor Confirmation
a.	APPLICATION	Aux Relay With Self Reset Contacts Double Element Type For Transformer Faults (30)	Complied/ Not Complied
b.	TYPE	VAA21 of GE T&D(Previously Alstom) make or Equivalent	Complied/ Not Complied
c.	AUX. SUPPLY	Aux. Supply shall be provided by BHEL Lot wise during order execution stage	Complied/ Not Complied
d.	OPERATING VOLTAGE	80% TO 120% of Rated Aux. Supply.	Complied/ Not Complied
e.	FLAG	Hand Reset Operation Indicator (Flag) for each element	Complied/ Not Complied
f.	CASE & TERMINATION	i. Case size to be enclosed	Complied/ Not Complied
		ii. Cutout drawing to be enclosed.	Complied/ Not Complied
		iii. The Relay shall be mounted in flush mounted case, with rear access terminals.	Complied/ Not Complied
		iv. Terminals shall be suitable for connecting two wires of 1.5 mm Sq.mm cross section.	Complied/ Not Complied
		v. Special Lugs or sockets, if required shall be supplied in adequate quantity along with the each relay.	Complied/ Not Complied
		vi. All contacts and coil connections shall be independently wired out to relay terminals without any common point.	Complied/ Not Complied
g.	CONTACTS	Minimum contacts combination 3 N/O + 1 NC S/R type with H/R operation indicator per element.	Complied/ Not Complied
h.	WIRING DIAGRAM	i. Wiring diagram to be enclosed	Complied/ Not Complied
		ii. Drawing of terminal disposition viewed from terminal side to be enclosed.	
i.	APPLICABLE MODEL NO.	Complete Model No. for Offered Relay to be enclosed	Complied/ Not Complied
j.	RESISTOR IF APPLICABLE	If applicable shall be supplied with each relay	Complied/ Not Complied

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ITEM NO.		005	Vendor Confirmation
a.	APPLICATION	DC Supply Supervision Relay having time delay on drop-off of the order of 100 to 200ms.	Complied/ Not Complied
b.	AUX. SUPPLY	Aux. Supply shall be provided by BHEL Lot wise during order execution stage	Complied/ Not Complied
c.	Type No.	VAA11 of GE T&D(Previously Alstom) make or eq.	
d.	OPERATING VOLTAGE	80% TO 110% of Rated Aux. Supply.	Complied/ Not Complied
e.	FLAG	Hand Reset Reverse Operation Indicator (Flag).	Complied/ Not Complied
f.	CASE & TERMINATION	i. Case size to be enclosed	Complied/ Not Complied
		ii. Cutout drawing to be enclosed.	Complied/ Not Complied
		iii. The Relay shall be mounted in flush mounted case, with rear access terminals.	Complied/ Not Complied
		iv. Terminals shall be suitable for connecting two wires of 1.5 mm Sq.mm cross section.	Complied/ Not Complied
		v. Special Lugs or sockets, if required shall be supplied in adequate quantity along with the each relay.	Complied/ Not Complied
		vi. All contacts and coil connections shall be independently wired out to relay terminals without any common point.	Complied/ Not Complied
g.	CONTACTS	Minimum contacts combination 1 N/O + 2 N/C Self Reset	Complied/ Not Complied
h.	WIRING DIAGRAM	i. Wiring diagram to be enclosed.	Complied/ Not Complied
		ii. Drawing of terminal disposition viewed from terminal side to be enclosed.	
i.	APPLICABLE MODEL NO.	Complete Model No. for Offered Relay to be enclosed	Complied/ Not Complied
j.	RESISTOR IF APPLICABLE	If applicable shall be supplied with each relay	Complied/ Not Complied

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ITEM NO.		006	Vendor Confirmation
a.	APPLICATION	VT Fuse Failure Relay (98)	Complied/ Not Complied
b.	AUX. SUPPLY (If Required)	Aux. Supply shall be provided by BHEL Lot wise during order execution stage	Complied/ Not Complied
c.	PT SECY.	110V AC (Phase TO Phase) & 63.5V AC (Phase TO Neutral), Frequency 50 Hz	Complied/ Not Complied
d.	OPERATING VOLTAGE (If Required)	80% TO 110% of Rated Aux. Supply.	Complied/ Not Complied
e.	FLAG	Hand Reset Operator Indicator (FLAG)	Complied/ Not Complied
f.	CASE & TERMINATION	i. Case size to be enclosed	Complied/ Not Complied
		ii. Cutout drawing to be enclosed.	Complied/ Not Complied
		iii. The Relay shall be mounted in flush mounted case, with rear access terminals.	Complied/ Not Complied
		iv. Terminals shall be suitable for connecting two wires of 1.5 mm Sq.mm cross section.	Complied/ Not Complied
		v. Special Lugs or sockets, if required shall be supplied in adequate quantity along with the each relay.	Complied/ Not Complied
		vi. All contacts and coil connections shall be independently wired out to relay terminals without any common point.	Complied/ Not Complied
g.	CONTACTS	Minimum contacts combination 1NO + 1NC SR	Complied/ Not Complied
h.	WIRING DIAGRAM	i. Wiring diagram to be enclosed.	Complied/ Not Complied
		ii. Drawing of terminal disposition viewed from terminal side to be enclosed.	
i.	APPLICABLE MODEL NO.	Complete Model No. for Offered Relay to be enclosed	Complied/ Not Complied
j.	RESISTOR IF APPLICABLE	If applicable shall be supplied with each relay	Complied/ Not Complied

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	GENERAL NOTES :	
1	All relays shall comply with relevant IS/IEC.	Complied / Not complied
2	Relay shall have rear access terminals suitable for taking two wires of at least 1.5 square mm size for DC wiring and 2.5mm square for CT/PT and auxiliary AC supply wiring.	Complied / Not complied
3	All contacts and coil connections of relay shall be independently wired out to relay terminals without any common point.	Complied / Not complied
4	Special lugs / combiflex sockets required for wire terminations on the relay shall be supplied in adequate quantity with each relay, considering two terminations at each terminal. These shall be provided in the relay packing case itself and shall not have any separate price implication.	Complied / Not complied
5	Five copies each of bound manuals comprising commissioning manuals, descriptive leaflets, wiring diagram and guaranteed technical particulars of each item shall be furnished before dispatch of equipment for submission to customer.	Complied / Not complied
6	The vendors shall furnish two sets of type test reports with the order acceptance for approval / review by customer. In case any discrepancy or inadequacy is found by the customer during approval, the same shall be resolved by supplier with customer with no binding on BHEL and without any price implication.	Complied / Not complied
7	Vendor shall furnish 2 sets of descriptive catalog, panel cutout, overall dimension drawings, electrical connection drawing, complete model number and technical particulars for each item along with the offer.	Complied / Not complied
8	2 copies of routine test certificates are to be furnished at the time of delivery.	Complied / Not complied
9	Relays shall be guaranteed for satisfactory operation for 60 months from the date of commissioning.	Complied / Not complied
10	Vendor to provide sticker mentioning PO on every relay	Complied / Not complied

ACCEPTANCE CRITERIA:

- i. Visual checks for cracks and surface finish.
- ii. Rating plate as per specification parameters.
- iii. Availability of all routine test certificates.

Prepared By
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Approved By
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